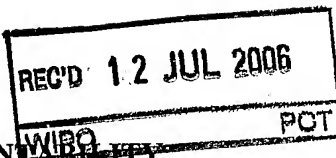


PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENT
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 231-02	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2005/000446	International filing date (day/month/year) 29-03-2005	Priority date (day/month/year) 31-03-2004
International Patent Classification (IPC) or national classification and IPC See Supplemental Box		
Applicant SCANIA CV AB (publ) et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 28-10-2005	Date of completion of this report 06-07-2006
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Dan Ionesco / JA A Telephone No. +46 8 782 25 00

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000446

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Cover sheet**

International patent classification (IPC)

F02M 25/07 (2006.01)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000446

Box No. I Basis of the report

1. With regard to the language, this report is based on:



the international application in the language in which it was filed

a translation of the international application into _____,
which is the language of a translation furnished for the purposes of:

international search (Rules 12.3(a) and 23.1(b))



publication of the international application (Rule 12.4(a))



international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished



the description:

pages 1 - 7 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____



the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 9 - 10 received by this Authority on 27-04-2006

pages* _____ received by this Authority on _____



the drawings:

pages 1 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____



a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

the description, pages _____



the claims, Nos. _____



the drawings, sheets/figs _____

the sequence listing (*specify*): _____any table(s) related to the sequence listing (*specify*): _____4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____



the claims, Nos. _____



the drawings, sheets/figs _____

the sequence listing (*specify*): _____any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000446

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1 - 7</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1 - 7</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1 - 7</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Amended claims have been submitted.

The documents cited in the International Search Report represent the prior art. The claimed invention stated in claims 1 - 7 is not anticipated by these documents. None of the documents or any relevant combination of them reveals an arrangement for recirculation of exhaust gases as described by these claims.

According to the arguments stated above, the invention claimed in claims 1 - 7 is novel and considered to involve an inventive step. The industrial applicability of the claimed invention is obvious.

Claims

1. An arrangement for recirculation of exhaust gases in a supercharged combustion engine (1) whereby the arrangement comprises an exhaust line (3) intended to lead exhaust gases out from the combustion engine (1), an inlet line (6) intended to lead air at above atmospheric pressure to the combustion engine (1), a return line (7) which comprises a connection to the exhaust line (3) and a connection to the inlet line (6), so that via the return line (7) it is possible to recirculate exhaust gases from the exhaust line (3) to the inlet line (6), and a second cooler (10) adapted to cooling the exhaust gases in the return line (7) by a liquid medium, characterised in that the arrangement comprises a first cooler (12) cooled by ambient air, whereby the first cooler (12) is incorporated in the inlet line (6) downstream from the connection of the return line (7) to the inlet line (6) so that, when the exhaust gases are returned via the return line (7), cools a mixture of exhaust gases and air before the mixture is led to the combustion engine (1).
2. An arrangement according to claim 1, characterised in that the liquid medium is contained in a cooling system which is adapted to cooling the combustion engine (1).
3. An arrangement according to any one of the foregoing claims, characterised in that said first cooler (12) is arranged close to a cooler (14) for cooling the coolant in the cooling system.
4. An arrangement according to any one of the foregoing claims, characterised in that the arrangement comprises an EGR valve (8) incorporated in the return line (7).
5. An arrangement according to claim 4, characterised in that the arrangement comprises a control unit (9) adapted to controlling the EGR valve (8).
6. An arrangement according to any one of the foregoing claims, characterised in that the arrangement comprises a turbine (4) driven by the exhaust gases in the exhaust line

(3) which are not led into the return line (7), and a compressor (5) driven by said turbine (4) so that it compresses the air in the inlet line (6).

7. An arrangement according to any one of the foregoing claims, characterised in that
5 the combustion engine (1) is a diesel engine or an Otto engine.